



WWF

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Comment

WWF-India is happy to announce that the eminent agricultural scientist and conservationist, Dr. M. S. Swaminathan, has taken over as President of the organisation. Dr. Swaminathan who was till recently the Director General of the International Rice Research Institute in the Philippines is currently serving a second term as President of the International Union for the Conservation of Nature and Natural Resources (IUCN) whose headquarters is in Switzerland.

Dr. Swaminathan has a distinguished record both as a research scientist and as a technocrat-administrator in India and overseas. He received his Ph.D (Genetics) from Cambridge in 1952. Since then 26 Universities in India and abroad have conferred honorary doctorates on him. He was Director General of the Indian Council of Agricultural Research, Secretary of the Government of India's Departments of Agriculture, Rural Development and Cooperation, and, Member, Planning Commission, at various periods.

He is the recipient of numerous national and international awards including the Albert Einstein World Science Award and the World Food Prize. On the occasion of his receiving this last mentioned award at the Smithsonian Institution in October 1987, the Secretary General of the UN, Javier Perez de Cuellar wrote "Dr. Swaminathan is a living legend. His contributions to Agricultural Science have made an indelible mark on food production in India and elsewhere in the developing world. By any standards, he will go into the annals of history as a world scientist of rare distinction".

Dr. Swaminathan's leadership will enable WWF-India to become a major force for conservation and environmental protection in India.

Thomas Mathew



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Cover Photo by Pradip Gupta



'Herd-instinct' leading us into a twilight gloom?



National Environmental Awareness Campaign-1988

Commencing November, 19 over three hundred conservation groups, educational institutions, professional associations, community organisations and government agencies participated in the National Environmental Awareness Campaign 1988, supported through grants totalling over Rs. 1 crore by the Union Ministry of Environment and Forests. The Campaign launch commemorates the birthday of Indira Gandhi and attempts to focus concerted attention on the frightening array of environmental issues facing the country and on the role of various segments of Indian society in finding and implementing solutions to them.

THEME

The major theme for the Campaign is 'Conserving Our Water Resources'. However Campaign activities all over the country will also address issues and problems relevant to specific regional and local contexts including deforestation, soil erosion, floods and drought, pollution, loss of wetlands and wild habitats, and other impacts arising out of unplanned developed activities. Burning controversies such as the social and environmental impact from the construction of large dams (Tehri, Narmada, Pooyamkutty, Bodhghat, Auranga), the establishment of nuclear power plants (Kaiga, Narora), mining projects (Doon Valley, Singrauli, Kudremukh), the location of major industrial units, roads, and other construction activity in ecologically sensitive areas, issues related to over-population, urban congestion, etc. will be discussed and projected using a variety of media and communication techniques.

PROGRAMME IMPLEMENTATION

Preparation for the National Environmental Awareness Campaign 1988 has taken place over the last six months under the guidance of an Empowered Committee of the Ministry of Environment and Forests. The World Wide Fund for Nature-India the country's biggest non-governmental conservation body, was appointed as the Central Coordinating Agency for the Campaign. In addition the Campaign is to be guided and monitored by seven Regional Resource Agencies including the Centre for Science and Environment (Delhi), the Environment Society of Chandigarh, the C. P. Ramaswamy Iyer Foundation (Madras), the Environment Planning and Coordination Organisation (EPCO) Bhopal, VIKSAT, Ahmedabad, and the Southern and Eastern regional units of WWF INDIA.

As part of the Campaign a major country-wide teacher orientation programme is being conducted by the Centre for Environment Education. School teachers from practically every State and Union Territory are being exposed to environmental issues as well as techniques and methods of environmental education, through three-day workshops conducted at selected places around the country. State Departments of Education are cooperating by deputing teachers for this programme and meeting their travelling and incidental expenses.

INVOLVEMENT OF ARMED FORCES

An interesting feature of the Campaigns in the last two years has been the participation of Armed Forces units in various parts of the country. The Army has constituted Nature Conservation cells within several of its formations, many of which are at Command HQ or Division HQ level. At the Army Headquarters in New Delhi the Army Adventure Cell under the Military Training Directorate has been expanded to incorporate an Environment & Ecology Cell. The programmes attempted to sensitize the officers and the troops about the need to minimize the damage caused to the environment by the routine operations of the Army; to promote among their families the concepts of nature protection and environmentally sound lifestyles; to encourage their participation in ecological restoration work; and to introduce new, energy-saving and less destructive technologies suitable for adoption in routine operations.

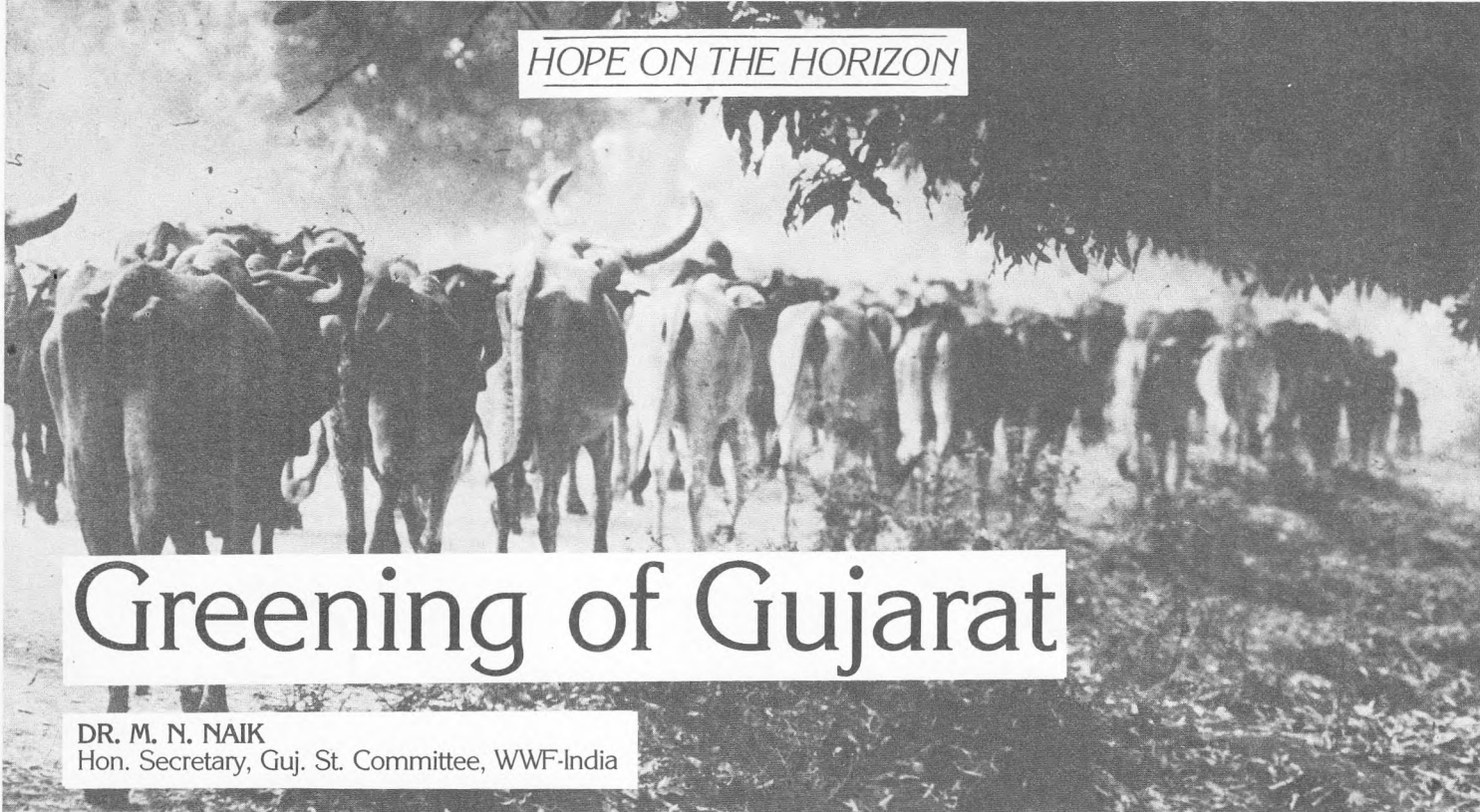
COMMUNICATION MEDIA

The programmes under NEAC 1988 include a variety of innovative and non-conventional means to reach out to selected target groups. Through public meetings, camps, exhibitions, competitions, science fairs, street theatre and folk arts, *padyatras* and rallies besides workshops, seminars, training courses etc. the Campaign seeks to convey the responsibility of every citizen of India to contribute his or her environmental effort protection and to the achievement of sustainable national development. By marshalling the commitment and communication skills of the country's environmental groups the Campaign sought to give concerted and strong publicity to the need for citizen participation in decisions that affected the country's life-sustaining environment.

Doordarshan, All India Radio, the Films Division, and other Government media organisations are to play a supporting role by giving a special emphasis to environment-related programmes during the Campaign period. For harnessing the talents of journalists the Centre for Science and Environment is coordinating a programme under the Campaign that offers fellowships to selected journalists to enable them to undertake field studies and prepare in-depth reports on the major Campaign theme to be subsequently published in their respective newspapers and journals.

Besides those organisations financially supported through the Ministry of Environment and Forests a number of agencies and institutions are participating in the Campaign using their own resources. These include public sector project authorities and institutions carrying out research programmes on environmental issues. The National Environmental Engineering Research Institute, Nagpur, for instance will publicise the work being carried out to offer technological solutions to environmental problems related to air and water pollution, public health, and low-cost methods for municipal and industrial waste treatment.

HOPE ON THE HORIZON



Greening of Gujarat

DR. M. N. NAIK

Hon. Secretary, Guj. St. Committee, WWF-India

PRADIP GUPTA

Gujarat is now considered to be a drought-prone State due to the failure of the monsoons for the past three years. 154 of the 184 talukas (84%) have been affected by this long dry spell—the longest recorded in this century. The drought has left the environment in a very fragile state, and its restoration will require an extremely concentrated and voluminous effort.

The efforts of the people and voluntary agencies alongwith the State Government in saving the cattle have been commendable and should be considered as a prime example of what a concerted people's involvement can achieve. To embark on a meaningful strategy and to understand the root causes of the ecological and the economic problems would require a detailed analysis of the areas before developing any action plan.

The Broadbase

Gujarat can be divided into two major geographical regions (1) the peninsula (2) the mainland. The *peninsula* can be further divided into two areas viz. Kutch and Saurashtra. The *mainland* can also be divided into two areas (North) consisting of the Sabarmati and Mahi river valleys and the (South) which comprises the Narmada and Tapti river valleys. There is an elevated belt along the eastern border of Gujarat. The same four regions can be used as ecological zones.

Land use patterns

Agricultural land: Fifty percent of Gujarat's land area is under agriculture, the majority of which (82% to 84%) depends entirely on rainfall as its source of water. This absence of a sound water-harvesting method cannot sustain a proper vegetal cover needed to bind the soil and produce the necessary organic matter. Faulty agricultural practices also lead to soil degradation because agricultural residues are not returned to the soil. Added to this, seasonal rains

come in heavy downpours which sometimes result in flash floods and lead to soil erosion. This in turn leaves the top soil exposed to erosion by wind and has resulted in vast agricultural areas becoming denuded; wastelands in the absence of any green cover.

Ravines: Gujarat has a number of seasonal rivers with small streams and rivulets as their tributaries. The heavy downpours have led to the formation of gullies and ravines by these seasonal rivers. These are called *Kotars* and occupy about 4% of the total land area of the state. The shrubs and bushes growing in and around these *Kotars* are indiscriminately cut by the people in order to meet fuel requirements thus leaving the ravines exposed to erosion by, both, wind and water for most of the year.

Pastures: Permanent pastures and grazing lands accounts for about 4-5% of the total land area. These areas are common land and hence neglected by all, be it government, panchayat or private agencies. Pastures are at times sacrificed for development purposes like the construction of houses for landless labourers, etc. Neglect, over-grazing, and collection of fuelwood have turned these once green pastures into large expanses of barren wastelands without so much as a blade of grass. This category also need immediate afforestation and protection.

Cultural wasteland: Nearly 10-11% of the total land area is categorised as culturable waste. This land should be made productive by initially restoring a vegetal cover to prevent further degradation and to encourage soil build up. Thereafter it can used productively. The lack of foresight and the spirit to experiment seems to be the reason for its under-utilization or non-utilization.

Land under industry: Usually, land previously under agriculture, is used for industrial development. Gujarat ranks second as far as industrial development in India is concerned. However, industrial development should actually take place on non-productive wastelands and not on already produc-

tive agricultural land. Water and air pollution from the industries takes a toll on the vegetation in the surrounding area and causes serious environmental problems.

Land under irrigation: Gujarat has about 16-18% of its agricultural land under irrigation, 5% of which is irrigated through canals. The rest of the area is irrigated by ground water. Heavy reliance on, and, unsound means of drawing ground water for agriculture has resulted in a considerable lowering of the water table. This has led to less water available for irrigation, the death of the trees that were present, and a deterioration of the ground water quality due to ingress of salt. We are caught in a vicious cycle since the lack of tree cover leads to lower rainfall, which in turn leads to drought situations which leads to over exploitation of ground-water which is not replenished due to poor rainfall.

In brief, it can be safely said that all categories of land are getting progressively degraded due to inadequate green cover. It will, thus, be necessary to examine the factors responsible for the loss of green cover. It would also be worthwhile to collectively examine population statistics and the people's need for bio-mass and energy.

Use of Energy

In Gujarat both urban and rural populations use both commercial and non-commercial sources of energy. The commercial energy used is in the form of electricity, petroleum and natural gas and coal. However, the majority of commercial energy is used by the industrial, transport and urban sectors. The rural sector depends largely (78%) upon non-commercial energy, like firewood, dung cakes, agricultural residues and the branches and twigs of vegetation found in the area. Besides the other sources of non-commercial energy, it is also avail-

lable to the rural community at zero cost, which is a further incentive to continue using this source of energy.

The cutting of wood for fuel is usually undertaken by either large or medium farmers, whereas small and marginal farmers only collect wood and use dung cakes and stalks of agricultural crops.

Studies carried on the energy-use pattern have indicated that 65-88% of energy used is consumed in cooking, 7-30% for agriculture and 8-13% on other domestic activities.

One thing is certain. The rural population obtains fuelwood from around the village. This has serious consequences on their environment. The villagers, keeping only short term gains in view, have not been able to see that the vegetation needs time for rejuvenation.

Cattle Grazing

Vegetal cover besides fulfilling the fuel requirements of a large rural population is also lost to unabated grazing. Though the rural people keep a large number of cattle, they do not have any adequate arrangement for fodder supply. The number of cattle-head (1,78,00,000) in Gujarat is quite alarming, since it is virtually one animal for every two humans. The reason for this high incidence of cattle is the mistaken belief that they can act as a supplementary source of income. In real terms of economy they are a public burden, as they destroy vegetation and subject the entire area to the forces of erosion.

There is now an urgent need to restore the vegetation of Gujarat which currently is severely degraded. The problem can be tackled by a multipronged approach.

- *reducing the use of wood as a fuel by employing efficient cooking devices.*
- *growing excess fuel wood in the state, reducing the number of cattle.*
- *employing sound water-harvesting technologies to sustain both surface and ground water supplies.*

These factors merit individual attention and are thus discussed below.

Improved cooking devices:

Improved Chula: In the rural areas the traditional chula is used for cooking. Recently, the use of the smokeless chula is being propagated. However, it is doubtful that its use will reduce the need for fuel wood considerably, although it does promise to increase cooking efficiency and eliminate the health hazard.

Biogas Plants: These plants produce a combustible but safe gas, appropriate for domestic use by using cow-dung as the feed-stock. It has been estimated that if all the dung generated in the villages is collected for bio-gas, on an average about 41% of the cooking energy requirements can be met.

In spite of biogas being technically accepted it is still not widely used. The reason for this can be attributed to the availability of free fuel wood. What is yet to be comprehended by the people is the fact that besides providing gas for fuel the biogas plants also produce good quality organic manure which can increase soil productivity and also the bio-mass.

In areas with abundant water and high rainfall the water hyacinth can be used to produce biogas, since water hyacinth multiplies at a very rapid rate.

Solar devices: This is another alternative source of fuel which would supplement the use of fuel wood. However, considering the standard of living in the villages at present it will be a long time before solar cookers are used as the principal cooking device.

Growing more fuel wood

Waste lands, fallow lands and uncultivable wastes and even agricultural land should be utilised to grow more fuel wood trees.

Fuel wood from the forests: The forest though a good source is not a reliable one due to its lack of homogeneity. Single species are not found in large stands.

Agro-forestry: Growing trees for the purpose of fuel-wood on agricultural land is another possibility, but must be undertaken with caution since a certain part of the land will have to be taken off from crop production, and even this venture will depend on the rains or availability of water.

Agricultural residues: Quite a large portion of energy requirement is realised from the use of agricultural residues. However, farmers cannot be expected to grow crops from their residues rather than their main products.

Fast growing trees as boundaries: It is a mistaken belief that growing trees on the boundaries of the fields reduces the supply of nutrients and water to the main crop, hence reducing yields. Therefore trees should be grown on the boundaries especially on the windward side so that the hot desiccating winds in the summer do not harm the crops. 3-4 rows of trees should be planted on the field boundaries by each farmer.

Growing energy crops: There are certain crops which can be grown exclusively for fuel purposes. *Tur* and *Sesbaniya* merit consideration in this category. There are certain shrubs which can be used for the same purpose; these are *ziziphus*, *prosopis*, *acacia* etc. While the former two can be harvested in 5-6 months the shrubs can be harvested

Use of wasteland: The vast salt wastes of Gujarat can be planted with salt tolerant species of both bushes and trees. The Dhaincha (*Sesbania bisponosa*) is very suitable.

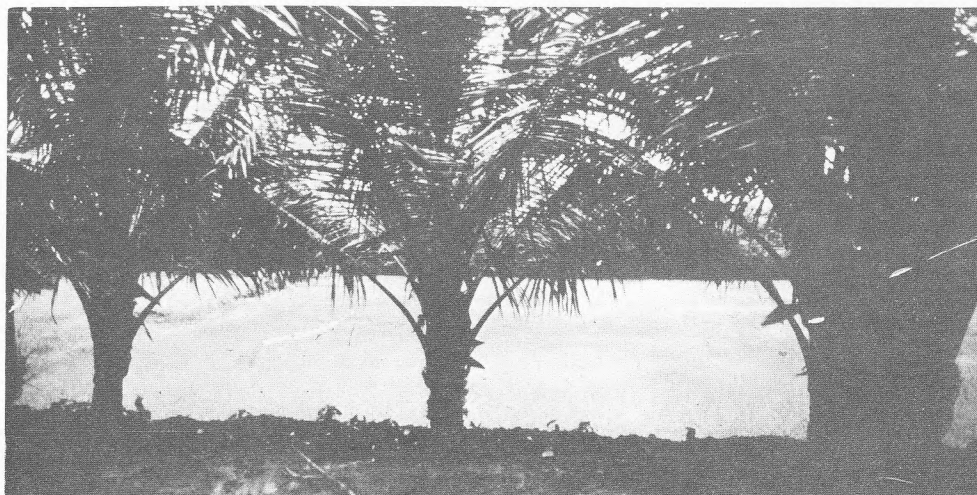
Roadside plantation: National and state highways usually have avenues but even district, block and village roads should have trees around them.

Greening institutional compounds: Large areas are earmarked by the municipality as recreation and/or exhibition grounds and certain areas are leased to institutions by state governments. These areas usually remain devoid of any green cover and unattended. These are generally of courts, hospitals, government housing colonies, office compounds, college hostel premises, outfields of the airports, government bungalows and must be listed in each city and town and the respective institutions persuaded to plant trees and plants so that some kind of green cover is regularly maintained.

Plantations on riverbanks and along railway lines: Planting trees on river banks is absolutely essential since without vegetation the banks of the rivers and canals (of which there are many in Gujarat) become fragile and can result in land and soil loss through erosion. Trees have been planted along railway lines in some places in south Gujarat but much work is left to be done. Both sides of the tracks must be planted with trees, with voluntary help if that is necessary.

Planting trees on sewage farms: Many large cities like Ahmedabad, Baroda and Surat have large areas under sewage farms where only fodder is grown. Despite the availability of both water and manure these farms have barely any trees. Therefore trees must be planted here, the fuel wood from which could be used for funerals, etc. if people found the use of sewage grown wood obnoxious for cooking and other domestic purposes.

Greening of the hills: The eastern border of Gujarat is generally a hilly tract and was once densely wooded. However, the forests of this tract have now been severely degraded and need to be reforested



Trees grown on field boundaries prevent topsoil loss and water run-off and act as a wind-break against hot desiccating winds.

every alternate year, for many years, due to their coppicing ability. These varieties of trees should be planted in villages, *gauchars*, ravines near the village, uncultivable fallow land etc. and should be protected in the sense that enough time for rejuvenation must be allowed after exploitation. The emphasis here is on obtaining fuel wood and medium timber.

urgently. The immediate efforts of this will be the prevention of any further soil loss, rapid and more efficient replenishment of the ground water and increase in wildlife due to restored habitat. All this will be in addition to the availability of fuel wood.

Creation of green belts: Special planting must be undertaken around industrial areas and around

cities and villages. These green belts around areas of human habitation and construction will help in moderating the climate as well as reduce the hazards of air pollution.

Reduction of livestock population:

The large numbers of livestock in the State has resulted in a major grazing problem leading to the destruction of general vegetation. A majority of these livestock are actually unproductive and are thus a burden on pasture lands and an unnecessary competition to productive cattle.

There is a serious need for education in the rural areas to help them understand that unproductive animals are an unnecessary burden and that only productive animals are economically desirable. Another aspect that can be explained to them is that the vegetation of Gujarat should be allowed to rejuvenate itself for the next couple of years, so that a proper and managed harvesting of the green cover can be undertaken.

Water harvesting:

Since 80-84% of the total area of Gujarat can be considered to be semi-arid, receiving a very low annual precipitation, the accent should be on a collective storage, and optimum usage of the water that is available. During the monsoon check dams and bunds should be constructed on streams, nullahs, and small rivers to collect water. Small farm ponds should be created and existing ponds should be deepened to increase the volume of water to be stored. Water and vegetation are interdependent and the one depends on the other for their own sustenance, and on both depends man's own survival. Trees need water to survive and to manage water successfully, man needs trees and plants to help the soil absorb the maximum amount of water. This leads to the ground water being replenished regularly. Vegetation will prevent run-off and wastage of precious water in and around the dry and semi arid areas of Gujarat.

The Greatest need:

The herculean task of providing green cover in Gujarat cannot of successfully undertaken solely by the Government. It is imperative that this becomes a

as also with the follow-up action.

Villages and communities planting, and successfully growing trees must be given adequate incentives for all aspects of their development. The providing of green cover calls for no commercial energy and very limited finances; what it does need is a strong will and sense of purpose on the part of the people. Large scale awareness among the masses especially



Growing subabul should be encouraged as it can serve a host of purposes such as fuelwood, fodder, water retention, etc.

in rural areas is essential. The task, although herculean, is not insurmountable if all hands are put to good use.

Recommended actions: (Role of the WWF-I)

Through the foregone discussion an attempt was made to give the reasons of the need for increasing the vegetal cover in Gujarat. It is however worthwhile to decide a set course of action and what the World Wide Fund for Nature-India, (WWF-I) could do in this respect. This will involve the tackling of the issue on three flanks.

- * Mass education
- * Emphasising the issue to the government.
- * Field demonstrations.

as a "special project" and followed up by a regular action plan to propagate the idea in the rural areas.

Even if an extension wing has to be established at the divisional level of the WWF-I, it must be done. Although the present emphasis of the WWF-I education programmes on students is useful, there is an urgent need to extend this emphasis to the adults in the rural areas.

Audio-visual programmes in the local dialect must be prepared to show the rural people the damage being done to their natural environment and the measures that can be adopted to prevent them. The impact of an audio-visual programme is likely to be immense.

Emphasis on the government:

Although the forest department has been propagating the idea of growing more trees, and the efforts appear to have been reasonably successful, the variety of trees grown are generally of the type used for fuel wood and other domestic purposes. However, what actually needs to be done is the growing of varieties of trees other than those which are used for fuelwood only. Also to be emphasised is the fact that each village should have a certain area which should be allowed to remain under natural vegetation and be declared a reserved forest.

A paper in this regard should be presented to the Governor and the Chief Minister who is the Chairman of the Environment Protection Council as well as the Minister for Forests and Environment.

Field Demonstration:

A plot of land could be acquired by the WWF-I on a long-term basis to serve as an educational area regarding vegetal cover. Varied vegetation should be grown. This can lead to practical knowledge on the interaction of the types of vegetation with soil and the organisms and animals of the soil. This area need not necessarily be a botanical garden but more a nature education park with an emphasis on plants.

Support from NGO's:

There are number of voluntary groups in Gujarat who are interested and are doing work for nature conservation. It would be worthwhile for WWF-I to be a catalyst and to back up and co-ordinate the activity of the greening of Gujarat.



Activist Annasaheb Hazare of Ralegan, Shindi (Maharashtra) seen here motivating villagers with regard to sensible farming and water management methods.

people's movement. Every village should develop their own action plans and in implementing them should be helped and guided by knowledgeable voluntary groups and the Government with regard to the type of species, the suitability of the particular area,

Mass education:

WWF-I can play a positive role in educating the masses by preparing literature on the subject and distributing it in the rural areas. The publication should be taken up

IT'S THEIR WORLD TOO!

The Obscure Ones

MONA PARIKH

Project Assistant, WWF – India

"You finger-painted the earth with wit, fantasy, elegance and order,
Laughed when you sculpted the kangaroo, the elephant, the penguin, the koala,
With what tenderness you crafted flowers, strawberries, tropical fish,
With what dignity lifted the seas, with what humour invented owls and centipedes,
With what gaiety pulled birds out of your sleeves and flung them into the air, O Cosmic Magician."

—Hannah Alexander

Anybody who knows anything about Indian wildlife is familiar with the tiger, the elephant, the rhinoceros and the chital.

But how many of us are acquainted with the Indian pangolin, the binturong, our hedgehogs, tree shrews and the lesser cats? How many of us are aware of these elusive, lesser-known creatures that also inhabit this land along with the lion, the sambhar and the gaur.

Let us take a look, or maybe, only have a glimpse of these "obscure ones". Obscure and not glorious for various reasons – most of them have nocturnal lifestyles and are hence difficult for man to observe and study; they are elusive, shy and secretive; anthropomorphically speaking they are not majestic, beautiful graceful or cute and cuddly, thus not awakening within us the desire to get to know them better.

Size is another important factor. The great one-horned rhinoceros, for instance, may not be the epitome of beauty but it is big, unlike the treeshrew or the hedgehog. And whether one wants to or not, one sees it and notices it. Its impact on the environment is felt and its interaction with humans has a significant effect.

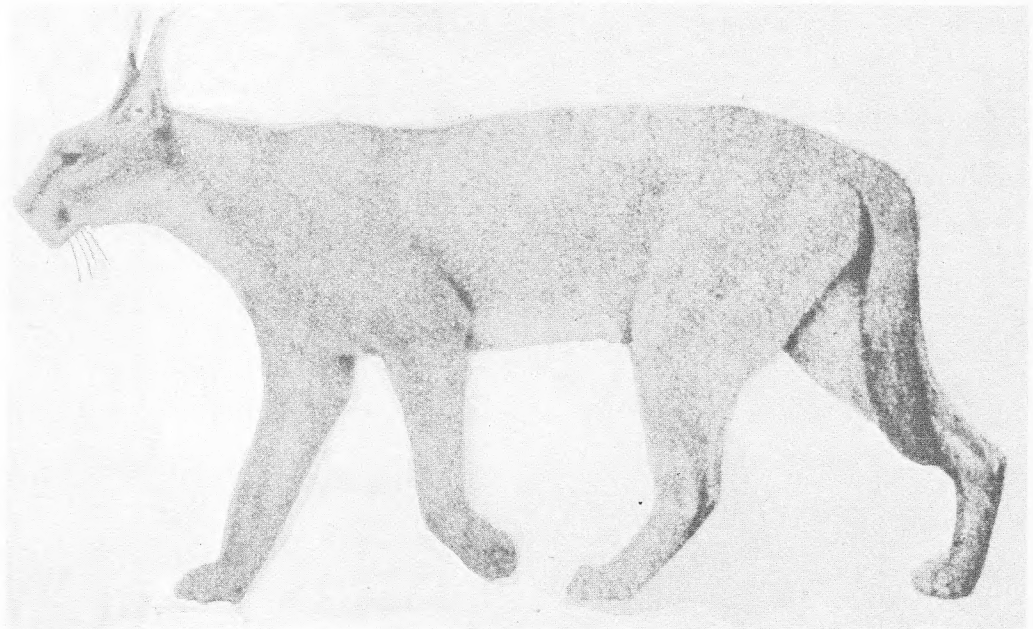
There is possibly no large sized animal that can really be unknown. It is a little difficult to ignore their presence. The exception, to a certain extent, could be the snow leopard, due to its practically inaccessible habitat. However the creatures we are going to look at here, are very much smaller, added to which is their considerably smaller distribution and range; making them seem invisible and inconsequential. Other factors contributing towards their obscurity include, their little known ecological or

evolutionary importance, the paucity of funds and personnel combined with priority of projects, minimal impact on and interaction with man and nature's own way of keeping her wild secrets. The result being that, today we do not know their real status. However, ironically, this fact in itself gives them a threatened status, for unless we get to know these species their future could very well be doomed.

The Caracal

This lynx-like cat is a beautiful creature but quite

What we do know about this fierce fighter is that it is adapted to the deserts and low hill areas of Rajasthan, Kutch and Northern Punjab. A broad head with tufted ears, reddish buff coat with thick soft fur, the caracal has long legs and a lithe body making it incredibly agile. It preys on birds, rodents, small deer, hare and other small desert creatures. *Felis caracal* is an expert tree climber, swimmer and a powerful fighter using both teeth and claws as savage weapons. Beginning its hunt after dark by the use of sight and smell, it can traverse well over 40 Kms over an irregular



unknown due to its very elusive nature and quickly diminishing numbers. In fact, it is fast approaching extinction in India, and we need to know more about it in the wild, if we want to save it.

terrain in a single night. The caracal is capable of knocking over a desert hare in full flight or a sandgrouse as it takes to the air. Although, not much is known about this cat, generally, 2-4 cubs are born

around October, and are reared in rock crevices, the hollows of trees or in porcupine burrows.

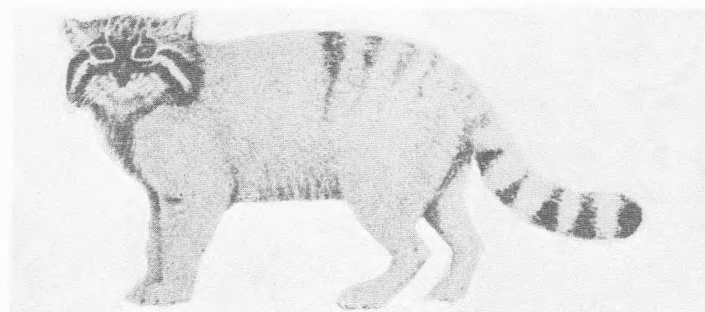
In fact of all the cat species it is this nimble one that comes nearest to the cheetah, in the structure of its hind-legs though it is isn't as quick. Will the caracal in India, go the cheetah way too?

Pallas's Cat

An air of distinction on the size of a small domestic cat, *F. manul's* home is among snow, ice and rock. A flat broad head, low set widely spaced ears, face framed by a ruff of long hair, long bushy tail and long fur on the throat, chest, belly and thighs are adaptations to its arid high altitude habitat of Ladakh. A similar physical adaptation is also seen in the yak found in these regions, the long fur giving it protection when it sleeps on snowcovered or frozen ground.

Its striking bandit-like face marked with bands of black and white is rarely seen, and practically nothing is known about the habits of this cat in the wild. This can be attributed to its almost impenetrable habitat. It is believed to live among rocks and prey on small mammals and birds.

A little is known about it in captivity where its behaviour was seen to be quite distinctive from that observed in most other small felines. It showed no fear of spectators nor a desire to avoid them, remaining silent instead of snarling, growling or hissing. Its call resembles a mixture of a dog yelp and the hoot of an owl. Yet another unknown creature—is its fate comparable to that of the snow leopard?



Pallas's Cat

and in Rajasthan and drier Kathiawar. Like most cats, it spends the day underground in burrows, emerging at dusk to hunt for rodents, desert gerbils and small birds. It also eats insects and small reptiles. Like other members of the genus *Felis*, the desert cat shows a

continual state of sexual readiness in the male and a brief season of eager receptivity (oestrus) in the female. The female desert cat limits her period to the first

infact, inbreeding between the male and female of the desert wild cat and tame tabbies often takes place. Yet not all characteristics blend among the offspring of these crosses. The kittens born of a cross between a tame female and a male desert cat seem to resent being handled. They spit and scratch as soon as they can see what is going on and eventually escape to the wild. Despite our close association with the house cat and some information gained from observation of the desert cat in captivity the eagerness of these animals to copulate repeatedly in their season only, mystifies behavioural scientists. Conception rate is low, and the establishment and maintenance of a strong pair bond does not follow. Perhaps the female uses this means to assess the vigour of the male. Possibly she welcomes his attention as a way to compete with other females for reproductive success. These explanations are not necessarily independent or mutually exclusive. The answer might, in all probability, be relevant to us, *Homo sapiens*.

Binturong

The largest member of the civet family, close relatives of the cats, the *Arctictis binturong* is also called 'bear-cat' (opposed to the Red Panda a.k.a. ♂ called



Binturong

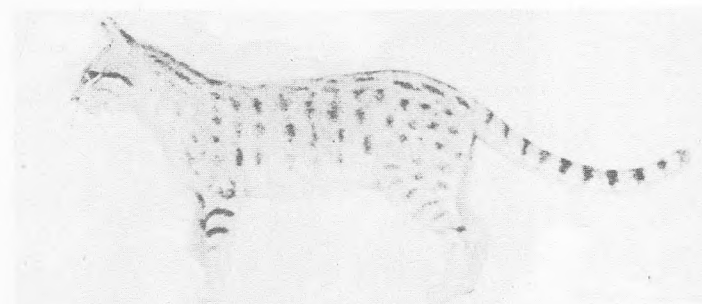
half of February. The males within smelling distance come hurrying through the night to serenade her and to fight for the favours she must confer, if she is to have a family. Around her den the caterwauling takes place—vocal display and battling—not very different from our domestic cats.

'cat-bear'). So called because of its long shaggy coat and tufted ears which is suggestive of a bear. A predominantly black coat, intermingled with white and buff hair, gives this bear-cat a grizzled appearance.

The binturong holds a small range in India, covering Sikkim and Assam and extending into Nepal, Bhutan, Burma and the Malayan countries. An interesting physical characteristic of this animal is that it holds a unique status of being the only carnivore, besides the kinkajou of South and Central America, to possess a truly prehensile tail which acts as a fifth grasping limb. However it does not use it as efficiently as many of the New World mammals. This adaptation obviously arises from its arboreal lifestyle, however it is an evolutionary question mark, an unsolved enigma.

Slow and deliberate, its movements through the trees are cautious though it can climb with ease. Hitching the muscular tail with its prehensile tip, round a branch as an anchorage it ascends and descends effortlessly. The young are able to support themselves on trees with the extremity of the tail alone. A nocturnal, arboreal creature of dense forests, it spends the day curled up in the hole of a tree, head well tucked under the bushy tail. More crepuscular (i.e. most active at dusk and dawn) than truly nocturnal, this omnivorous animal emerges at dusk to feed on small mammals, birds, fruits and insects. The latter two items forming the bulk of its diet.

When moving about it may periodically utter a series



Indian Desert Cat

Indian Desert Cat

This nocturnal wild prowler is one of the progenitors of the domestic cat. Related to the African wild cat, this small yellow-buff cat with distinct black spots is found in the desert of north-western India upto Ladakh,

of Africa and Asia, where these cats live close to human communities. Dr. N. B. Todd of the Carnivore Genetics Research Centre in Massachusetts, USA suspects that this exploitation of opportunities afforded by mankind was fundamental in the domestication of the cat in the first place.

The desert cat *Felis libyca* resembles the domestic tabby in producing no eggs for the sperm to fertilize until after at least one male has copulated with her. She keeps the sperm alive until they can function. By then, the parenthood of the kittens she will bear 62 days later is likely to be so jumbled that no two may have the same father.

The desert cat and domestic cat remain perfectly infertile. Inbreeding proceeds at a fair rate in parts

of low grunts or a hissing sound by expelling air through partly opened lips. The species as seen in captivity, is known to be particularly fierce, growling angrily when irritated. However, it used to be kept as a pet and can easily be tamed when at a young age. Its secretive nocturnal mode of life contributes largely to its obscure status. From captive records we learn a little, about the fact that after a gestation of about 90-92 days, the female produces a litter of 1-2 young which are born blind and helpless. The male helps in the caring of the young.

Indian Pangolin

A pangolin takes you back to the prehistoric days of the dinosaur, roughly, a 100 million years back. Days of the Brachiosaurs the 26 m long 'arm lizard' and the Pterosaur or flying reptile and the Archaeopteryx, the first bird. The mammals evolved from one such ancient reptile, and the pangolin is a survivor from the past ages.

This humped nocturnal scaly anteater *Manis crassicaudata* is a quaint animal of the Old World. Its bullet proof covering of overlapping horny scales, is composed of agglutinated hairs, and its underside is almost bereft of the armour.

A clumsy creature, about a 100 cm long and 7 kgs. in weight, the pangolin has a small narrow pointed head terminating in almost immovable jaws with a tiny mouth. An incredibly long, (25 cms) glutinous tongue protrudes and is quickly withdrawn with ants adhered to its sticky surface. This tongue is linked to the stomach and is controlled by the pelvic muscles.

The Indian pangolin (there is also the Chinese pangolin *M. pentadactyla*), may actually be commoner than is generally believed. But again, due to the elusive habits of the animal, it is seldom seen. It is known to inhabit the plains and lower hillslopes of the southern Himalayas upto Sri Lanka. The Chinese one ranges eastwards through Assam and the eastern Himalayas to Nepal, Burma and South China). Walking on their front knuckles, the powerful claws turned inwards, this toothless beast advances towards a termite mound guided mainly by its sense of smell. It sniffs rapidly from place to place, seeking the right spot to commence the mound excavation operations with its powerful blunt claws. Continuously sniffing during the digging, it suddenly shifts its direction of excavation as its powerful sense of smell gives it the exact location of the white ants. The long tongue lubricated with saliva is instantly thrust out into the intricate passages of the destroyed mound and the termites gulped down.

organ) in birds. It grinds with the help of some small stones found in it.

Living on an exclusive diet of ants and termites, the pangolin is fond of most of these species. If a pangolin is at work in a nest of the biting red ant, sometimes well up in a tree, it will pause every so often to remove them from its face or abdomen by scratching vigorously. A pangolin kept in captivity grubs about, finding ants to eat, under flowerpots and stones. It was seen to burrow into termite mounds, but curiously would not eat those termites which live under logs and stones or touch the small red ants commonly found in gardens, however black ants were eagerly licked up. It was seen to relish ants eggs more than the adults. The large nests of the big red tree ants were a delicacy. In captivity, these creatures, also drink water and milk using the long tongue dexterously for lapping up the liquid and often darting it in and out so rapidly as to beat up a froth. After a good meal the animal digs out its own borrow to settle for a rest. In association with this (as well as its feeding habits), the animal's feet are furnished with long, curved blunt claws. Using its forefoot, it scoops out the earth and throws it backward between the hindlimbs and then casts this out by a vigorous kick. Long tunnels often

started back for home, the animal slung over his neck; the tail hanging down one side and the head on the other. He did not know that these creatures roll themselves into a very effective horny ball when frightened. And this particular beast was merely stunned, and when it came to, it automatically coiled itself round his neck in its defensive posture. The man was later found on the trail, strangled to death.

Very little is known about its breeding habits. A single young is born with soft scales. The baby is carried around on the mother's tail. When alarmed the mother envelopes the young in her own protective covering. Like the rhino horn the scales of the pangolin are considered to be of medicinal value, and it is often hunted for this reason.

Tree Shrew

Half a century ago an eminent anatomist analysed the structure of a tree shrew's skull in great detail and noted that the creature had a surprisingly large brain and argued that it should be regarded as an ancestor of the monkeys and apes and classified it with them. This tiny, furry, long-tailed creature which runs along the branches and over the ground, inquisitively testing



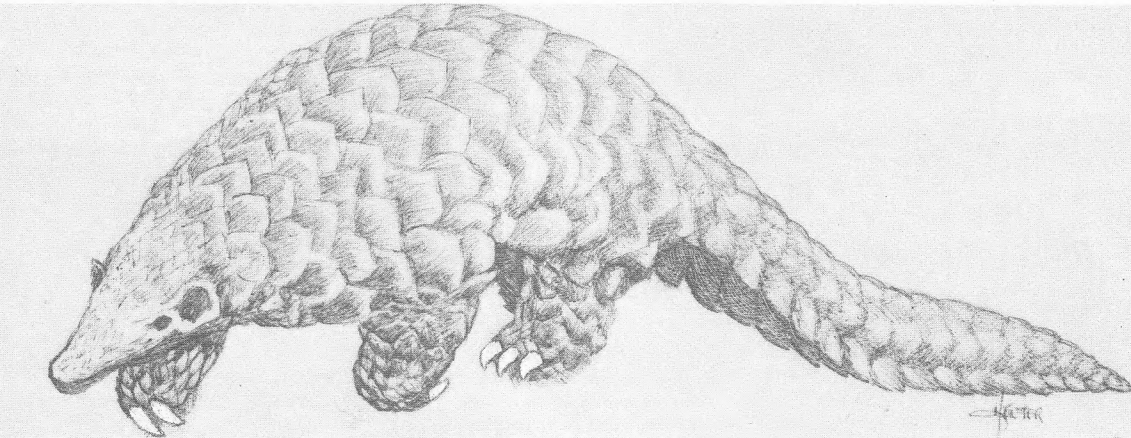
Indian Tree Shrew

6 m below the ground, are made which ends in a large chamber housing the parents and young. The entrance to the burrow is closed when the animal is in, and this makes it difficult to discover, though sometimes, the peculiar tracks they leave around give them away.

The creature spends its day in the burrow curled up in an armoured ball, its head between its forelimbs and its tail firmly rolled over. In fact, a 'pangolin ball' is a feat of muscle power which is almost impregnable. It would require great strength to unroll the animal and this is its defense

everything with its pointed nose — looks and behaves rather like a squirrel. It has created a tremendous controversy about its position in scientific classification and evolutionary significance. In fact the debate continues. Currently the balance of opinion has swung away from viewing it as an ancestral monkey and favours placing it with the other shrews. However, the fact that elements of so many different kinds of mammals can be seen in it, suggests that it might well resemble the ancient creature from which all placental mammals have descended.

These little insectivores existed during the dinosaur age and produced descendants to fill all the niches vacated by the ruling reptiles and so founded all the great mammal groups, a very important land mark in our evolutionary history.



Indian Pangolin

Rhythmic movements of the throat sieve debris acting as a filter. The lower region of the toothless pangolin's stomach functions as does the gizzard (a masticating

The naturalist, W.W.A. Phillips, tells a story of the immense strength of a pangolin in Sri Lanka. A villager had clubbed a pangolin in the jungle one day and

Assam, and finally, the Nicobar tree shrew (*Tupaia nicobarica*) found only in the Nicobar islands, and of which there is absolutely no information. All tree

shrews are true forest dwellers, their range confined to the evergreen rain forests of S.E. Asia (India in-

(about an hour or so). A pregnant female is recognised about a fortnight before she gives birth by her swollen



Malay Tree Shrew

cluded). However, these forests are being depleted as fast as the Amazon forests—too fast for nature or man to replace them and save the millions of species including the tree shrew which live within it.

Tree shrews, in appearance, are a combination of a shrew and a squirrel. A long tapering pointed snout with a moist nose pad, short ears and bushy tail, about the size of a rat. Diurnal in habit unlike other shrews, the tree shrew is a misnomer spending most of its time on the ground and using the trees only as a means of escape or for shelter. It forages on the ground, ferreting among fallen leaves, under rocks and in crevices looking for insects and other arthropods, seeds, buds and probably fruits and small mammals like mice and birds. It is fond of drinking and bathing in water. Though expert climbers, they do not leap from tree to tree. It moves quadrupedally on tips of branches and has an extraordinary variable grip on fine twigs. A very active animal, it moves on the ground in short dashes of 3-4 steps, then pauses and dashes off again, often in a different direction. It also indulges in fairly complex locomotory play such as back somersaults—an amusing creature to watch, as recorded in captivity. Not easy creatures to keep in captivity mainly due to their extreme nervousness and highly excitable nature. However various aspects of its social behaviour and reproduction have been studied in captivity, especially of the common tree shrew.

It is not a social animal, and only short-lived family units have been seen to occur in captivity. In fact separate nest boxes, rest areas and food is needed for the adults and young, in absence of which major fights occur. From a few observation in the field (in Malaya and Indonesia) it was seen that it either lives alone or with a mate, not tolerating other individuals of its kind.

Dominance seems to be governed by cage space, the number of animals, and the male-female ratio. It was observed that the common tree shrew ruffle their tail hair in response to environmental, social and other stimuli. The frequency of ruffling is related to the degree of subordination and the number of individuals in a cage. This may have serious consequences. When ruffling occurs in over half the number of animals in a cage, the males retract their testes and the females become infertile, when this occurs in about 80% of the individuals for about 10 days, it results in the death of the captive animals.

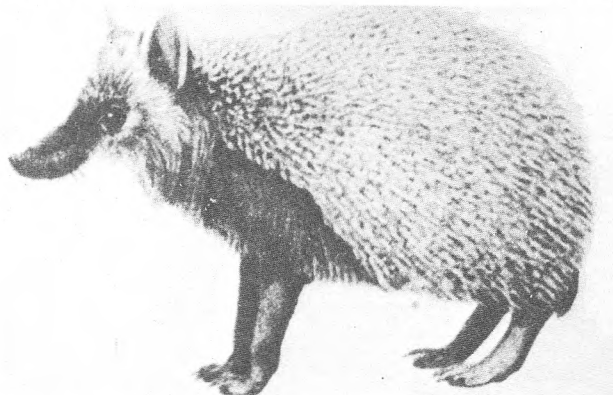
Very little is known about the breeding habits in the wild, but in captivity they breed throughout the year giving birth to small litters of 1-2 young after a gestation period of 46-50 days. Born blind and naked the young open their eyes on the 25th day. When following a female in heat, the male marks objects with a scent gland on the chin and the throat or chest (depending on the species), which is rubbed along the cage floor. Vertical objects and the females themselves are also commonly anointed. Male-female consorting was observed only for very short periods in captivity

abdomen and passive behaviour; and in the last week by her folded abdominal skin, her resting most of the day, her hunched back while moving and her anti-social aggressiveness. A male attempting copulation at that stage is rejected, but is accepted anywhere from 48 to 72 hours after she gives birth.

Tree shrews have been surviving for a long time and are an evolutionary success. But will they be able to adapt to man's rapidly changing environment? Or will they die out along with their rainforest home?

Hedgehog

Occasionally a very hungry fox learns the trick of turning a hedgehog over on its back to quickly kill it, before it can straighten up again. However, most of the time these rolled up bristle balls are safe and well protected and another of nature's success stories. Its remarkable ability to stretch its loose spiny skin with a muscular action to cover its head and limbs is an almost fool-proof protective accomplishment. When alarmed or handled, it throws its back up with a sudden jerk to drive the spines into one's fingers while grunting or hissing in protest.



Longeared Hedgehog

A primitive mammal, the hedgehog is a nocturnal insectivore. Two species are found in India—the Longeared hedgehog (*Hemiechinus auritus*) is an inhabitant of the Indus Valley extending into Rajasthan where its range overlaps with that of the Pale hedgehog (*Paraechinus micropus*) found from the South Indian plains to the Rann of Kutch. As seen from their distribution, hedgehogs inhabit the dry plains and deserts.

It's piglike snout, its stout and clumsy look coupled with a short tail and stumpy legs gives it its name. It also has well developed ears and eyes; and if you know how to handle it, it can fit into the palm of your hand. The long-eared one has deep blackish-brown fur on its head and underparts and as its name suggests longish ears which function as heat radiators in their desert home. The pale one is as stated is a light coloured species. Like other species, but unlike the *Hemiechinus*, this one has a parting bare of spines running from the centre of the forehead to the crown.

Voracious little feeders, the hedgehog can attack and overcome venomous snakes, scorpions, lizards, *arachnidae*, etc. They also eat fruits, insects and eggs. In captivity the animals can get quite vicious and abnormal in behaviour and sometimes eat their young. Caged animals were seen to rush to a carcass of a dead hedgehog and feed on it. On the other hand



Pale Hedgehog

they have been observed to be remarkably resistant to hunger and thirst. Two individuals survived ten weeks in a lab without food and water.

Hedgehogs shelter by the day in burrows in the sand, beneath thorny bushes or tufts of grass. In Rajasthan the longeared hedgehog digs its own burrow about 450 mm long with a single opening under small bushes. The burrow is occupied by a single individual throughout the year, except during the breeding season when the female widens the end of the tunnel and lines it with grass and leaves, to accommodate the young ones. These are born only once a year in a litter

of about 1-4 after a pregnancy of about 5 weeks.

They are born blind and naked with soft flexible spines which rapidly harden and new ones sprout in 2-3 days. For a couple of weeks the mother keeps her young in the burrow nest till their eyes open and they follow her on her foraging sprees.

From the onset, the youngsters can climb and swim with ease. Although no Indian hedgehog is known to hibernate, in the Punjab and the Northern areas, hedgehogs are rarely seen

during the winter months, because they probably become lethargic in the rigorous cold.

It would be worthwhile if we could collect as much information as we can on the lesser known species. We would be very interested in hearing from you, about the lesser known wildlife in your area. Lets try and build up a data bank. Lets communicate!

TOURISTS CAN GO TOO FAR

Leave the wilderness alone!

THEODORE ROSZAK

Someday in the distant evolutionary future, when articulate dolphins are the Stewards of the Earth, 1988 will be remembered in their chronicles as a bleak milestone in the Lower Humanoid Era. In that year, Antarctica was opened to tourism.

British and American travel agencies, mainly in league with the Chilean and Argentine governments, hope to deliver more than 7000 tourists to bases along the ice-shelf this year, for prices ranging from a low of \$ 3000 (not including the air fare to Buenos Aires) to a high of \$ 70,000 for a few bands of hearty souls who want to ski the Vinson Massif or trek to the pole itself (where only about a dozen explorers have made it by foot since the time of Amundsen and Scott).

Visitors to Antarctica are warned that their journey may be less than luxurious and that accommodation on the continent is minimal. Nevertheless, travel agents expect the trade to expand as facilities improve. Who knows, perhaps one day there will be luxury hotels, a cineplex or two, and video-for the kids? (Some tours welcome children above the age of eight.)

"Everyone agrees it's inevitable," says one tour leader, whose firm advertises Antarctica as "the last continent".

Until I learnt what he and others in Canada, Britain and the US were up to, I did not realise that the Antarctic held a special status for me. I thought of it as the Earth's guaranteed impregnable wilderness, the one place on the planet that would forever resist human intrusion. All the others have been overrun. A travel agency here in my hometown of Berkeley that calls itself "The Adventure Company" and appeals to a certain variety of rugged ecologist will now take you up the Amazon, down the Nile, across the Sahara, into darkest Africa, through Mongolia, Tibet. Nepal—provided entry is permitted by local political conditions. Such trips demand a good deal of walking, but they also involve air travel, professional cooks who can provide "gourmet dinners in a tent at 12,000 feet", well-prepared toilet facilities, hot water, and lots of photo opportunities. And now such make-believe roughing-it comes to the Antarctic.

Of course, I knew that for nearly two decades the scientists of some half dozen nations have been fringing the frozen continent with year-round encampments. Reportedly, they have already done more than 10,000 tourists to scrawl the signature of our species across the glacial waste: cans, bottles, plastics, chemical spills, junked machinery.

Even so, where monumental wilderness is concerned, tourism marks a qualitative change for the worse. It represents the final, most humiliating stage of human domination. It is the domestication of the once proudly untamed for no better purpose than amusement. Is there something worse than rendering the tigers extinct in their native habitat? Yes. Turning them into playthings in a theme park.

Some years back, Jacques Cousteau reported that one could not find a mile-long stretch of ocean that was free of grease and tar. Even in the depths of the seas the whales have trouble transmitting their calls through the disruptive throb of maritime engines—especially those of submarines and supertankers. Jane Goodall complains that uninvited visitors to her base in Tanzania are driving her chimps psychotic. NASA tells us that, in the skies above us, traces of smog can be found at the edges of the stratosphere. And, more recently, we learn that the ozone is being dissolved by chemical debris from hairspray canisters and polystyrene-foam hamburger boxes.

Let it not go unnoted: with our generation, the urban-industrial dominance of the Earth has reached saturation point. There is nothing left that is authentically remote, autonomous, unblemished. The globe as a whole has become an artefact of our civilisation. Where the primitive and wild linger on, it is only as national parks, game preserves, reservations organised by megalopolis for its diversion or instruction. Nothing non-industrial survives outside industrial society, but only inside and on sufferance, as a licensed enclave.

On the surface, tourism is so benign, indeed so improving an activity, that one is loath to classify it among our environmental sins. But it has had the potential to be an arrogant, aggressive practice ever since European voyagers six centuries ago decided that it was up to them to "discover" the rest of the world, including its inhabited lands. Tourism is the last, mellow stage of the Age of Discoveries. A century ago, when only the elite could afford to globetrot, tourists played little part in Western society's conquest of the planet. But now, touring has been democratised—and who can say a word against that? Travel agents and hoteliers have opened the world to millions, not only the sights, sounds, flavours, local colours and art treasures of great cities, but also the austere hinterlands that were once the province of explorers and 'great' white hunters.

Pursued with such scope and on so vast a scale, tourism has become an expression of cultural imperialism. It makes everything over in the image and

to the taste of the visitor. To be sure, for the tourist travel can be broadening; but for the planet, for its native peoples and exotic places, it is flattening. And homogenising. Bad enough when all the cities of the world fill up with tour buses and sprout indistinguishable airports, hotels and fast-food outlets. Worse still when every stretch of usable beach in the world becomes a summer-long mob scene fenced in by high rise condos. But worst of all when cruise ships, souvenir boutiques and hotel chains move into the jungles, the deserts—and now the lordly Antarctic.

As we practice it today, tourism destroys what tourists come to see. As obvious as that is, I recognise that nothing can be done to halt or deflect so popular and profitable a pursuit, except at the personal level. Some time back, I reached a decision about touring. It was the summer I visited Yellowstone National Park, naively expecting a true encounter with the wild, my first as a born and bred city dweller. Instead, I found the park to be a bumper to bumper traffic jam from entrance to exit. Great natural wonders such as the geyser Old Faithful were surrounded by tiers of seats to accommodate the dense crowds. At night, portable radios and teenage hi-jinx went on at all hours.

I came away feeling infinitely sad, and there and then determined that if this is what any wilderness has become, I would stay away. The sight was too much like a king conquered and exhibited in chains. As for any wilderness that still remained pristine, I would never seek it out unless I could meet it on its own rugged terms, leaving behind all the comforts of home, all means of convenient access, all professional assistance. Because I am not a hiker, camper, outdoorsman, this I cannot do. So I simply leave the wilderness alone. It is enough for me to know that it is there, at least for as long as it survives defilement. I will not be among the gaping, pampered passers-through who violate its endangered grandeur. That is my small private gesture of respect for the wilderness that will not long be with us.

Meanwhile I content myself with whatever the National Geographic may be able to film for me of the faraway mountains, deserts and glaciers. Even so, now that I find American television averaging a half dozen wildlife documentaries a week, I begin to wish the photographers would also stay at home and let the penguins be.

Theodore Roszak is author of *The Cult of Information* (Lutterworth, 1987). He teaches History at California State University, Hayward, USA.

Courtesy: THE NEW SCIENTIST

Goa

PANAJI

The Chief Minister of Goa Shri Pratapsingh Rane, the Goa Committee of the World Wide Fund for Nature-India and over fifty students participated in a one-day excursion



Shri Pratapsingh Rane laying the foundation stone

through the mangrove-rich Choroa Island situated five kms. from Panaji, the capital of Goa. The excursion was organised to encourage and promote the preservation of flora and fauna in the State. To support these activities an Environmental Education Centre is being constructed at Madel Jetty on Choroa where Shri Pratapsingh Rane laid the foundation stone. The island is an ideal location for the Centre since the flora provides a good nesting ground for both local and migratory bird species as well as adequate natural surroundings. Additionally, the Chief Minister commissioned a fibreglass boat named 'PINTAIL' acquired from the National Institute of Oceanography for educational excursions.

Gujarat

BARODA

The Baroda Division celebrated Wildlife Week from 2nd Oct. to 9th Oct. '88 to create awareness amongst children, youth and adults with Walks for Nature, Debates, Essay & Painting Competitions, etc. in various schools of Baroda, Bharuch and Kaira districts.

'Walk For Nature' programme was organised from Sardar statue, near

Sayajigunj Tower to Mahatma Gandhi Nagar, Baroda, (the distance was 4 kms) on 2nd Oct. '88. Nearly 750 NCI members, WWF subscribers, school and college students and other nature lovers participated, carrying posters with slogans like 'Walk a mile for a crocodile smile', 'Save Wildlife', 'Save Water', 'Save our environment', 'Live and let live' and 'join the conservation crusade' etc. Shri Indubhai Patel,

Chairman, Baroda Division of WWF-India flagged off the rally from Sardar statue, Sayajigunj Tower, Baroda. The main objective of this rally was to spread the message of nature conservation among the people.

Committee members of Baroda Division, Shri Indravadanbhai Patel, Shri S. A. Merchant, Shri Ajitsinhji Gaekwad and Dr. M. N. Naik, Hon. Secretary of Baroda Division also participated and encouraged the participants. All participants took an oath for nature conservation and national integration at Mahatma Gandhi Grouh, Baroda.

A 'Walk for Environment' was organised in collaboration with the NCI of P. P. Shroff High School, Padra and Forest Department at village Padra, Dist. Baroda, on 3rd Oct. '88. 300 students

from different schools of Padra taluka of Baroda district participated in this programme. They carried placards conveying the message of Environment Protection, 'Habitat Protection', etc. Shri Harikishanbhai Kachiya, President of Nagar Palika, Padra, flagged off the rally from P. P. Shroff High School,



The 'Walk for Nature' being flagged-off by Shri Indubhai Patel

Padra. The main objective of this rally was to spread the message among the rural people.

CONSERVATION ROLL OF HONOUR

WWF has recently named to its International Conservation Roll of Honour three people who made outstanding contributions to conservation during their lifetimes. The posthumous honour acknowledged the distinguished contributions of Louis Franck, Vice-President of WWF International; Lt. Col. Fatesinghrao Gaekwad of Baroda, Founder-President of WWF-India and Trustee of WWF International; and Seiji Hatakeyama, Executive Vice-President of WWF-Japan.

An exhibition on 'Water Conservation', 'Wildlife', Drought and Floods was organised in collaboration with the NSS and the M. S. University of Baroda from 2nd Oct. '88 to 9th Oct. '88 at NSS Prathana Khand, Baroda. This programme was inaugurated by Mr. Anil S. Navle, Programme Co-ordinator of the NSS, M. S. University of Baroda. University youth and school children visited this exhibition.

An exhibition was also arranged at Padra Village for rural people in collaboration with the NCI, P. P. Shroff High School and the Forest Department, from 6th Oct. '88 to 9th Oct. '88. 12 Schools from Padra and from surrounding rural areas of Padra taluka visited this exhibition.

RAJKOT

In the first week of August saplings collected from the Forest Department nursery were planted at three places in and around Rajkot. In all 512 saplings were planted with the help of volunteers from the Kathiawar and Lion Nature Clubs. Saplings of shade giving trees were also supplied to subscribers and nature club members. From the 28-30th a camp for 60 economically backward children from Rajkot was held at Hingolghadh.

In September, a product sale was

some nature club volunteers and the sale of the products grossed Rs. 1,850/-. A workshop for economically backward children was organised at the Anandnagar colony by the Education Officer. Tree planting was also carried out by the Education Officer and some volunteers at Balashram as a follow-up after the Hingolghadh Camp. The Education Officer gave a talk about the activities of WWF-I at two schools in Gondal where two nature clubs were to be formed. He also visited Junagadh, Keshod, Sutrapada, Kaneri and Veraval with the Divisional Organiser for the sale of products and the appraisal of nature clubs.

During Wildlife Week competitions in five categories were organised. The categories: (i) Essay writing (ii) Poetry (iii) Poster painting (iv) Painting (v) Slogan writing. As done last year an exhibition was prepared by each nature club including the five entries of each category.

Eastern Region

CALCUTTA

Members of The Time & Talents Club were treated to the film "Land of the Tiger" at a special gathering at the Tollygunge Club. Mrs. Anne Wright MBE, Trustee, addressed the gathering, and aims and aspirations of WWF-I were highlighted. They were also told of the various conservation projects that are on-stream in the Eastern Region.

The Department of Tourism, Government of India (Eastern Region) held their annual Workshop at the Calcutta Airport, in conjunction with the International Airport Authority of

India. The participants came from several agencies like the Customs, IAAI, Air India, Indian Airlines, Travel Agents and some other regulatory bodies. Major G.

Getting to Grips

Three consecutive years of drought in the Saurashtra region of Gujarat State had made the situation very critical for the birds and animals as regards food and water during the summer of 1988. In the Hingolghat Nature Education Sanctuary

found were removed and kept at my residence till adequate rain was received. They were then released in the sanctuary. In the Saurashtra region most hedges had been destroyed during the last drought due to which many animals lost their last refuge.



SHIVRAJKUMAR KHACHER

The author's mother feeding a hungry visitor

there was no natural surface water available. One of our enthusiastic supporters, a doctor by profession, provided drinking water in one area by means of several containers, both hanging on trees and at ground level. Hundreds of birds and even hare were seen taking advantage of these relief sources some of which were located barely 25 feet from a busy state highway. At the Hingolghat Castle drinking water was arranged where of birds, chinkara and jackals came to drink. The sanctuary management arranged for water at certain spots in the 1600 acre area for animals like the nilgai, the chinkara and other birds.

A Star Tortoise was found dead in a well, and since these species were found to be in danger for lack of water and food, those

Near the farm at Jasdan a number of peafowl were found in the neighbourhood. The peafowl were ill and unable to fly and hence were rounded-up and kept in cages at the farm where they were given food and water and were released after they had recovered. More than fifteen peafowl visited the house regularly for food provided by my mother punctually at 4.00 p.m. It is suspected that the peafowl were suffering from the toxic effect of chemical pesticides sprayed on the lucerne crop. An appeal (in Gujarati) was printed and distributed to all the villagers of the Jasdan Taluka to provide food and water for peafowl as also treatment for the affected birds. This resulted in a positive response in the many villages.

SHIVRAJKUMAR KHACHER

Bir, presented a slide illustrated talk on wildlife conservation, with a special emphasis on the principles and rules related to international trade in endangered species (CITES).

"The World of the Beaver" and another short film titled "Air Pollution" were screened for our subscribers and NCI members at the Tata Centre Auditorium.

At another function the audience enjoyed two good films – "The Fate of the Forests" and "Language of Birds". Both these films were also very popular at several screenings at Jamshedpur as well.

At the Calcutta Zoo flocks of migratory birds have begun their annual visits. But the numbers seem to be reducing each year – why? is still unclear. Highrise buildings appearing close to the zoo, insufficient drainage of the ponds and water stretches in the zoo or that noise and air pollution that have grown unchecked in the city. One would miss

the large flocks of ducks and other water birds flying past over the Calcutta skyline at dawn and dusk.

The National Environment Awareness Campaign – 1988 gathers momentum. In all 30 projects have been granted funds under this Regional Resources Agency. A few more are awaiting finalisation. With the theme 'Conserving our Water Resources' the project activities are indeed varied, as they are territorially wide-spread from the metropolis to the townships to the villages and hamlets in the rural areas. "We are looking forward to a very busy three

months indeed; assisting these two score projects to take shape and get off the ground to conserve our natural heritage" declares Maj. Bir.

Tamil Nadu

MADRAS

On the invitation of Mr. Hamsa De Reed, a gentleman in charge the Kanvashrama Ashram at Varkala in Kerala, the TN State Organiser visited the ashram premises to size up the area and its problems.

The ashram land has 12 acres of undulating hilly terrain, densely clothed with a mixture of wild and cultured vegetation. The entire vegetative cover is actually cultivated, for even the 'wild patches' are the result of decades of the manual labour of a few dedicated individuals. A large 4-acre 'raised' jungle, now easily comparable to a *shola*, provides shelter to large numbers of jackals, snakes, birds and other shy creatures, and many specially raised thickets amidst the cultivation of cashew, coconut and fruit trees provide 'stop over' points for the wild denizens of this ashram-for-all-creatures.

This tiny wildlife haven is under seige from surrounding land holders and others who are eager to exploit its wood and land value. Earlier, 36 acres belonged to the ashram and was cared for, in the same manner. However, 24 acres were almost forcibly acquired under local pressure many years ago and razed to the ground, handed over to the "landless", who promptly re-sold it to insensitive parties.

The visit made it clear that the land needs all the protection it can get and the Trivandrum office of WWF-India has been approached following which the chairperson Mr. Udhaybhanu visited the place for a personal view.

An illustrated talk on the 'Gir lion project' was delivered by Mr. Ravi

Chellam, who is a life member of WWF-India and currently doing his research on the Gir lions. The talk was educative and interesting and many of our local nature club members, subscribers and members of the general public attended the talk.

The State Organiser visited the JIPMER campus at Pondicherry and spoke to the existing as well as prospective members of the JIPMER NCI, on the NCI movement as well as presented the slide show Snakes Of India. The JIPMER NCI is in the process of conducting a tree planting programme within their sprawling campus.

The State Organiser repeated the AV on snakes at the newly opened Salim Ali School of Ecology in Pondicherry. The talk was attended by the senior students.

Madhya Pradesh

BHOPAL

The Madhya Pradesh State Office of the World Wide Fund for Nature-India had organised a series of programmes during wildlife week. To commemorate the occasion this office formally released the WWF-India products for the year 1988-89 at the residence of the Chief Minister, Shri Arjun Singh M.P. with the Madhya Pradesh State Committee members present.

The Barasingha Nature Club, Balaghat observed wildlife week by organising an exhibition in the Government Girls Higher Secondary School and also a rally in which over 2000 students from local schools participated. The participants were addressed by the Conservator of Forests and the DFO of the area. The talk by the Senior Forest Officers emphasised the need to conserve natural resources, specially forests and wildlife. The club coordinator Mr. A. K. Chals, delivered a resume on the activities of the club and its future plans.



WWF-INDIA

(right to left) Shri Arjun Singh, Col. Gururatan Singh, State Organiser WWF-India Dr. D. K. Belsare, Brig. S. C. Kural and Shri B. K. Bagchi, member of M.P. State Committee.

MEDICAL THREAT TO AFRICAN PRIMATES

The capture of primates from the wild for use in medical research is a major factor in the decline of some species, states a new reference book *Threatened Primates of Africa*. This is the latest volume in the 'Red Data Book' series on the world's endangered species, and it analyses the problems facing Africa's primates and lists the 30 most endangered species.



My home is the forest, not a laboratory!

The export of chimpanzees from West Africa for research is thought to have led to drastic reductions in numbers, say the authors. Although the trade is relatively controlled, the demand for apes for the study of disease could increase at any time and rapidly cause species to become extinct. The problem is that wild populations cannot survive the triple problems of live capture, hunting, and loss of habitat.

The authors call for adherence to the World Health Organisation policy on the use of threatened primate species for bio-medical research. Where possible, the emphasis should be on 'in vitro' research (where animal tissues are used rather than living animals), and primates that are used should come from captive bred populations.

Threatened Primates of Africa is published by IUCN/Conservation Monitoring Centre, 219c Huntingdon Road, Cambridge CB3 0DL, at £ 12.

TASK FORCE TO SAVE RARE TURTLES

In a major effort to conserve loggerhead and green turtles in the Mediterranean, two of Europe's most endangered species, WWF has undertaken projects this summer in Turkey, Cyprus and Greece, writes Simon Lyster, WWF Conservation Officer.

Jointly with the EEC, WWF has funded a survey of the entire Mediterranean coastline of Turkey. The objective is to identify important turtle

nesting beaches and to secure their protection before they are destroyed by tourist development. A research team of 20 biologists has been counting the tracks where the adult female turtles have hauled themselves out of the sea at night to lay their clutches of up to 100 eggs, and then looking for hatchlings when they emerge two months later, also at night, to begin their precarious journey down to the water and relative safety.

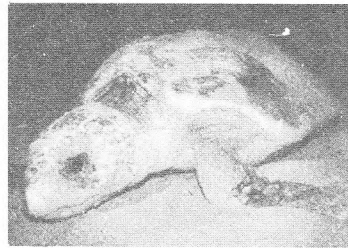
Disturbance from tourist development is the main problem for Mediterranean sea turtles. Turtles also get caught in fishermen's nets, are killed or maimed by motorboat propellers and die from ingestion of plastic bags which they apparently mistake for jellyfish.

Main nesting area

Previous studies had revealed Dalyan in south west Turkey to be the country's most important known loggerhead turtle nesting area. As a result of pressure from WWF and other organisations, the Turkish Government decided this summer to abandon plans for a vast tourist hotel to be built right on the main nesting beach and designated Dalyan a "special protection area". Preliminary indications from this summer's survey are that other beaches in the Kumluca, Manavgat and Kısılot regions may also be very important.

Protection in Cyprus

WWF also funded a survey of the north-eastern corner of Cyprus and found nesting beaches for both loggerhead and green turtles. The local authorities have agreed to establish a nature reserve to protect the area.

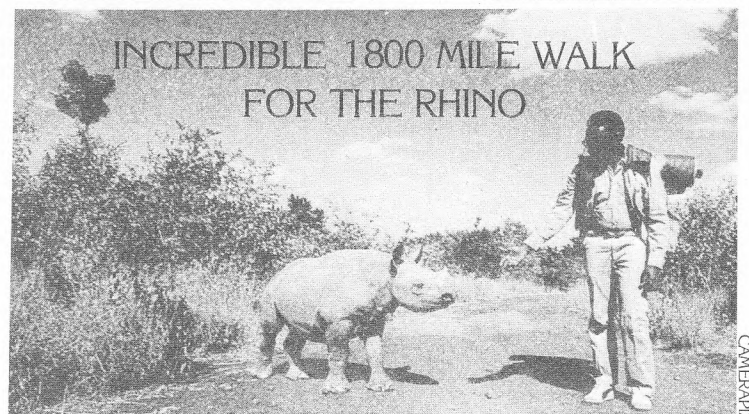


Loggerhead turtle

However, the most dense nesting area of Loggerhead turtles in the Mediterranean is on the Greek island of Zakynthos. There, tourist development has already expanded at such a rate that the turtles are under tremendous pressure and no longer use parts of their traditional nesting beaches.

RE-BIRTH OF AN ISLAND

After a visit to the island of Tiritiri Matangi by Sir Peter nearly seven years ago, the maritime park's board stepped up protection of the area and declared it an open sanctuary.



Michael Werikhe with a young rhino in Kenya

This year's walk across Switzerland, Germany, the Netherlands and then Britain attracted great media and public interest, and helped to raise much-needed money for the rhino.

An incredible, 1,800 mile walk across Europe by a young Kenyan to raise public support for the endangered black rhino ended in London last month.

Michael Werikhe, 32, has become a hero in his country for his determination to do something for wildlife and the rhino in particular. In 1982 and again in 1985 he undertook ambitious solo

walks across Africa in his personal campaign to save the rhino, now reduced to under 4,000 in the whole of Africa.

In England, he walked a route shaped like a rhino's head, from Ipswich, through the Midlands, to London. Before returning to Kenya, he and all involved in the UK walk, met HRH Princess Alexandra, WWF's UK President, at St. James's Palace. WWF was one of five conservation bodies who organised the tour in Britain.

Some people move mountains. And some move islands. Sir Peter Scott moves both, writes Elizabeth Kempf. His latest feat took place off the coast of New Zealand's North Island in the Hauraki Gulf Maritime Park.

There, Sir Peter has inspired the citizens of New Zealand to cover an island in forest again to bring back its own species which disappeared with the loss of their habitat decades ago.

"It was Sir Peter Scott's aura which inspired the rehabilitation of this island," said WWF New Zealand's conservation officer, Ray Walter. "He started a fund-raising campaign and within a short period of time tree nurseries were created, the hillside began sprouting indigenous trees, and the native birds reintroduced to the island began multiplying. For example, six pairs of the North Island saddleback have now increased to 50 pairs."

Tiritiri Matangi is an 'open sanctuary' where visitors are welcome not only to take nature walks and watch birds but are also invited to join in the island's treeplanting activities.

In the nursery, tiny seedlings germinated from the native seed, are pricked out into root trainers and stored within the shadehouse which protects them from the wind and sun. Groups of workers and visitors can frequently be seen heading off over the hillsides with spades and seedlings under their arms. Mr. Walter tells them

to plant their trees "wherever it feels right".

WWF supporters and other conservation groups, service organisations and sports clubs, also help with the planting. He says that the island is an experimental project which is being carefully monitored in order to assess the future development of other open sanctuaries.

MAJOR CRACKDOWN ON ILLEGAL IVORY TRADE

In an important crackdown on the illegal ivory trade, the Hong Kong Government has brought in a new law to ban all imports of ivory unless accompanied by a permit from CITES (Convention on International Trade in Endangered Species).

Until now, 'worked' ivory could be imported without restriction and clever traders had abused this loophole to get hundreds of tonnes of ivory from poached elephants into Hong Kong and on to the world market.

"This is one of the most significant steps in years to stop the illegal ivory trade," said Simon Lyster, WWF Conservation Officer.

Elephant populations are crashing in parts of Africa, and particularly East Africa where they have dropped

by almost 60% in the last seven years.

In 1986, 75% of the world trade in ivory was illegal. Approximately 70% ends up in Japan: the USA and Western Europe are also significant importers.

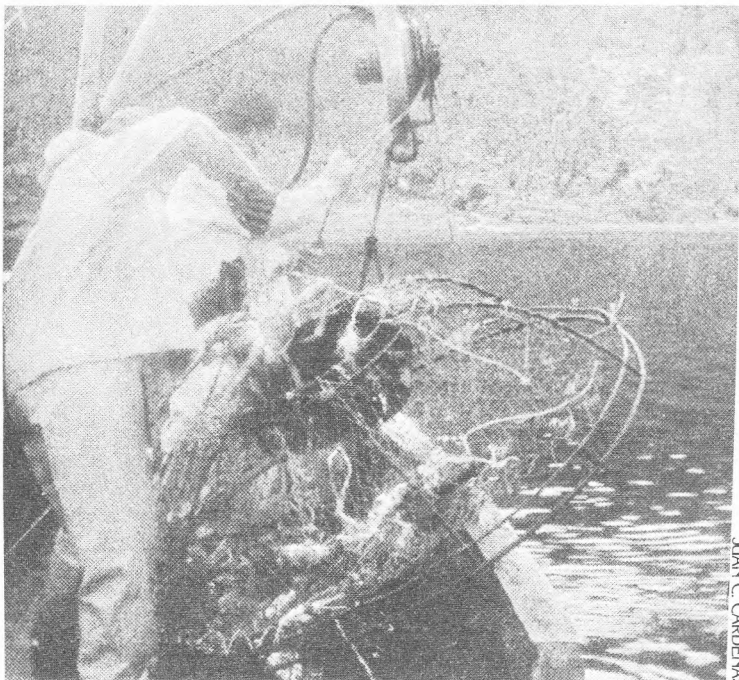
"One Hong Kong trader established two ivory carving factories in Dubai, which has no controls on trade in ivory, and imported more than 60 carvers from Hong Kong specifically to work ivory from illegally killed elephants so that it could be exported to Hong Kong without a CITES permit."



Confiscated elephant tusks in Africa

The measures taken by Hong Kong followed intense pressure from WWF. A major WWF objective now is to persuade Dubai and the other Arab Emirates—the United Arab Emirates is the only country ever to have withdrawn from CITES (it did so earlier this year)—to stop importing illegally obtained ivory and to rejoin CITES.

DOLPHINS IN CHILE DIE FOR CRAB BAIT



Non-sustainable commercial fishing will soon result in rapid decimation of both, crabs and dolphins and can end a lucrative means of a livelihood.

The increasing demand for one of the world's most prized seafood delicacies—Chilean crab—is causing a drastic decline in the

country's rapidly-dwindling marine resources.

Crab fishing, which began 60 years ago, has grown by 500 per cent in the last decade, leading to a serious reduction in various crab species as well as the fishermen's illegal choice of bait—Commerson's dolphin. Latest reports indicate that Commerson's dolphin is now scarce and the crab fishermen have set their sites on new prey, including Peale's dolphin, the Dusky dolphin, and more recently, the Southern sea lion, the Southern fur seal, and several species of penguin. A Southern sea lion which is clubbed to death is said to provide bait for 350 crab traps, compared to a dusky dolphin which provides half that amount.

Crab fishing has been on a steady rise ever since its inception in 1928. In 1973, the harvest rose to 355 tons and had climbed to 1,028 tons by 1976.

Records indicate that in 1976, 1,200 dolphins were killed for use as illegal crab bait. In 1979, crab capture increased to 2,268 tons and dolphin capture reached 4,120 animals.

Capture of the dolphins is done with harpoons or guns. WWF-funded surveyors investigating the crab fisheries report that during the first big expansion of the crab industry (1976-1980), the most heavily-captured species was Commerson's dolphin, because of its friendly behaviour. Whole dolphin families are easily harpooned because once one member of the family is injured by a

harpoon, the others gather around it and attempt to help it stay afloat. For

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WWF AWARDS GOLD MEDAL TO SCIENTIST



ELIZABETH KEMF

Prof Vo Quy sitting in a former mangrove forest devastated by Agent Orange.

Prof Vo Quy of Vietnam, who has devoted his life to rehabilitating his country's war-damaged environment and to fostering international cooperation and scientific exchange among all nations, was awarded WWF's highest honour, its Gold Medal, in Hong Kong on November 3.

In presenting the award, WWF International President HRH The Duke of Edinburgh praised Prof Vo Quy, Dean of Biology at the University of Hanoi and author of *The Birds of Vietnam*, for his outstanding leadership in pioneering environmental conservation and education in Indochina.

Vo Quy, known as 'the Professor with the smile', is Dean of Biology at the University of Hanoi and Founder-Chairman of Vietnam's Natural Resources and Environmental Protection Centre. In 1987, Prof Vo Quy led an official delegation of Vietnam's top conservationists to the US—the first such visit since 1975—for the purpose of discussing ways in which American and Asian countries could reopen lines of communication and strengthen scientific relations and exchanges.

A distinguished field research scientist, Prof Vo Quy is also co-author of his country's National Conservation Strategy, an internationally acclaimed programme which has mobilized the Vietnamese to plant some 500 million trees per year. In addition, he is the architect of a groundbreaking agreement between Laos, Kampuchea and Vietnam, which calls for international co-operation in protecting rare and endangered migratory species and the establishment of transfrontier reserves, or peace

parks, on their shared borders.

A teacher whose origins are a poor farming village in central Vietnam, Prof Vo Quy began his career as an instructor in his own village nearly 40 years ago. He has just published a children's book on the birds of Vietnam and is compiling a Red Data Book on Vietnam's endangered species. He also recently discovered one of the world's rarest pheasants in central Vietnam. Known in Latin as *Lophura hatinensis*, the International Council for Bird Preservation named the endangered bird in English this year as Vo Quy's Pheasant. At the same ceremony, WWF also named three new Members of Honour for their outstanding contribution to conservation. They are Prof Jean Paul Harroy (Belgium) in recognition of his lifelong devotion to the promotion of national parks and nature reserves worldwide, especially in Africa, and for his major contribution to the development of the International Union for the Conservation of Nature and Natural Resources as its first Secretary-General from 1948 to 1956; Mr. J. D. Backer (Netherlands) for his inspiring leadership as Chairman of WWF-Netherlands, his dedication as Chairman of the Indonesia Advisory Committee and his contribution as a Trustee of WWF International to ensuring good relations between National Organizations and Headquarters; and Carl Mason Mannerfelt (Sweden) for his invaluable leadership as Chairman of the Board of WWF-Sweden for eight years during which time the income of WWF-Sweden was increased more than twelvefold.

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this reason the fishermen call the dolphins *tontitas*, or silly ones.

CODEFF, the National Committee for the Protection of Fauna and Flora in Chile hopes with WWF support to alert consumers to the alarming fact that by eating Chilean crab meat they are killing off the dolphin population in the Magallenas region.

PEREZ OLINDO WINS GETTY PRIZE

Dr. Perez Olindo of Kenya, an international champion of wildlife, is the winner of this year's \$ 50,000 J. Paul Getty Wildlife Conservation Prize.

Dr. Olindo is the first African national to win the prize, which has been called the "Nobel Prize for Conservation." World Wildlife Fund Executive Vice President Kathryn S. Fuller made the announcement in August. Fuller serves as the secretary to the international selection jury made up of prominent conservationists from around the world.



W. CONSERVATION & MGMT. KENYA

Dr. Perez Olindo (left) and a colleague.

Dr. Olindo, age 50, has participated in many international conservation issues, and has been recognized for his significant contribution during critical negotiations that resulted in the development of The Convention of International Trade in Endangered Species of Wild Fauna and Flora (CITES) of 1973.

In his current position, Olindo is spearheading Kenya's efforts to save the black rhinoceros. Olindo is responsible for implementing the country's Rhino Management Plan, which calls for creating a system of rhino sanctuaries. Since he took over as director, the country's rhino population has stabilized.

Prior to taking over management of the Wildlife Department in 1987, Olindo worked as a consultant for the WWF East African Regional office in Nairobi. WWF has conducted over 100 projects in Kenya since 1963.

From 1966 to 1976, Dr. Olindo was director of Kenya's national parks—a period during which the park system grew substantially and achieved world renown. While serving in that post, he received an honorary doctorate degree in science from his alma mater, Michigan State University.

Recognized worldwide for his dedication and successful management of conservation programs, Dr. Olindo received several other conservation awards. Prince Bernhard of the Netherlands, a former WWF President, appointed him an Officer in the Most Excellent Order of the Golden Ark in 1973.

The J. Paul Getty Wildlife Conservation Prize is presented each year to a person who has made an outstanding commitment and contribution to the conservation of wildlife. The prize was first presented by the late J. Paul Getty in 1974, and is continued today by his son, Gordon. Previous winners include Dr. Jane Goodall of Tanzania, Sir Peter Scott of England, Dr. Hemanta Mishra of Nepal, Alvaro Ugalde and Mario Boza of Costa Rica, Dr. Boonsong Lekagul of Thailand, and the late Dr. Salim Ali MP of India.

WORLD BANK UPDATE ENVIRONMENTAL STAFFING AT THE WORLD BANK

During 1987, the Bank carried out a major reorganization of its management and staff designed to increase efficiency and

effectiveness and better focus the Bank's resources. Among the primary aims was to strengthen the Bank's ability to address environmental concerns. The environmental aspect of reorganization was announced by Barber Conable, the Bank's president, in a May 1987 speech.

WWF STATEMENT ON ELEPHANTS AND IVORY

The African elephant, earth's largest land animal and beloved by people around the world, is under unprecedented assault. The disastrous decline of elephant populations, primarily due to poaching and illegal trade in ivory, is one of the major conservation problems facing Africa. Elephant numbers have been reduced from an estimated 1.2 million in 1981 to approximately 750,000 in 1988, and the poaching is still going on.

Africa is losing one of its most valuable natural resources. The elephant is a central feature of tourism and, if managed properly, could provide local people with significant financial and other material benefits. Elephants play an important ecological role in maintaining habitats and biological diversity, and with their majestic appearance and fascinating social structure they capture the human imagination and inspire conservation of nature in a way that few other species can do. For ecological, economic, aesthetic and moral reasons, the poaching of elephants and illegal trade in ivory must be stopped.

WWF is strongly committed to conserving the African elephant and is working with the African countries concerned to bring this about.
It is the policy of WWF:

- * To recognize the primary responsibility of African countries to devise and implement elephant conservation programmes and policies, and the responsibility for ivory consuming countries to provide assistance for these programmes;

- * To oppose the killing of elephants except where absolutely necessary for the conservation of the species;

- * To assist in every way possible in the elimination of poaching, which is the source of most ivory now flooding the international market and the principal cause of the elephant's decline;

- * To end all illegal trade in ivory through cooperation with ivory producing and consuming nations and through support for a full implementation of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and its ivory control system;

- * To call for a moratorium in 1990 on international trade in ivory from any country where elephant poaching persists or which deals in illegal ivory;

- * To advise potential buyers of ivory products that, so long as illegally taken tusks constitutes a substantial share of world ivory trade, the purchase of ivory creates an incentive for poaching and threatens the survival of the African elephant;

- * To inform the general public, national governments, and the international conservation community about the threats facing the African elephant, about the status of elephant conservation programmes in Africa, and about international programmes to focus interest and generate action to halt elephant poaching and illegal trade in ivory.

The Bank created an Environmental Division in each of the four Regional offices. In addition, the Bank elevated its existing small environmental office to departmental status. At a time when Bank staff was being reduced overall, these environmental units were to get significant new staff.

The four regional environmental units together contain about 30 staff, including consultants. They focus on the environmental impacts of Bank

funded projects. Their technical carry out environmental work. Thus, each task will necessitate an interdisciplinary and interdepartmental effort.

The Environment Department also has about 30 staff and consultants. They conduct policy and research activities in a range of technical, economic and social areas, provide support to regional staff and establish and maintain information systems and data bases. The Department is also involved in Bank staff training on environmental issues.

JAPANESE IMPORTS OF AMAZON LOGS REVEALED

The World Wide Fund for Nature (WWF) called on Japan to halt its new log imports from Brazil which began this month. This move comes in the wake of a recent crucial meeting of the 42-country International Timber Trade Organisation (ITTO) at its headquarters in Yokohama, Japan.

Both countries seem set to exploit a

"Babies of every species are created out of soil, air, rain, food and rivers. If we change all these into poison, we must accept the fact that we will change our unborn into poison as well. What materials will be used for their arms, but the minerals of the poisoned Continents? Of what stuff will their eyes be fashioned but, the water of our lethal rivers? What will those wet fleshy brains be made of but, noxious gases and acid rain?"

*— Brian Swimme: The Universe is a Green Dragon
curtesy: "ANKH"*

He presently serves as the vice chairperson of the International Union for the Conservation of Nature and Natural Resources East African Species Survival Commission, and as director of the Wildlife Conservation and Management Department of the Kenyan Ministry of Tourism and Wildlife.

expertise includes economics, ecology, agriculture, forestry, sociology, anthropology, chemistry, and urban planning. A major criticism of the regional structuring, however, and one due in large part to budgetary constraints, is that no single division can cover the spectrum of disciplines required to

loophole in Brazil's soon to be imposed ban on log exports. President Sarney of Brazil said: "I have directed the National Council on External Trade (CONCEX) to prepare a regulatory instruction prohibiting completely the exportation of timber logs. This is an indispensable measure for the ecological and economic protection of the Amazon region and will stop Brazil becoming the exclusive world supplier of raw timber."

This November the first batch of some 11,000 cubic metres of logs arrived in Japan and more than 27,000 cubic metres are due before Christmas. The Japanese anticipate receiving about 40,000 cubic metres of logs per month from Brazil in 1989, amounting to half a million cubic metres during the year. This represents approximately 4% of Japan's expected total tropical timber imports.

Adam Markham, WWF Campaigns Officer, said: "A sudden influx of logs to Japan from Brazil could seriously jeopardise attempts to improve forest management and conservation policies in South East Asia and could also open the floodgates of Japanese trade in Amazonian timber."

"Countries like Malaysia will be unable to afford to a modification of forestry practices if their prices are

undercut. This latest trade agreement between Japan and Brazil does just that.

Pledges made at the ITTO to forest conservation seem to directly contrast with these countries actions. ITTO's commitment to conserving rainforests is a currency which should not be devalued. Pretty speeches have a hollow ring when you look at the actions of Brazil and Japan. They are literally selling the rainforests down the river."

The logs come from a 15,000 hectare site in Rondonia, Western Amazon, due to be flooded by a hydro-electric dam. The Amazonian Timber Association floats logs of more than twenty species of trees 1,000 kilometres down Brazil's Madeira river from Porto Velho for shipment to Japan. It is estimated that plans for future dams will make timber [from at least 600,000 more hectares of forest] available for export to foreign plywood makers.

Brazil has had a ban on log exports since 1979 which was partially revoked in 1986. President Sarney recently gained massive publicity when he reaffirmed his country's intentions to prevent deforestation in the Amazon by banning exports and cutting subsidies to cattle ranching.

Research on Ganges River Dolphin begins in Indian Sanctuary

BC. Choudhury of the Crocodile Research Centre of the Wildlife Institute of India reports that research at the Chambal Sanctuary that has concentrated in the past on the gharial (*Gavialis gangeticus*) is now being expanded to include the susu (*Platanista gangetica*) and other members of the riverine fauna, such as turtles and otters. The Chambal Sanctuary is on the Chambal River, a tributary of the Yamuna River in the Ganges drainage in northern India. S. A. Hussain and R. J. Rao of the Sanctuary recently completed a survey of 400 km of the river and found dolphins at several locations. Hussain plans a two-year research effort on the dolphins, concentrating on movements and habitat preference. He plans to use radio-telemetry to study the dolphins' movements. One of the main ultimate objectives of the program is to see if large-scale re-introduction of gharials reared in captivity has any detrimental effect on the dolphins. So far over 1200 gharial have been released into this stretch of the river. Data on dolphins will also be collected by Rao in the course of a planned re-introduction of captive-reared turtles into the Ganges. Information on the programs can be obtained from the investigators at the Crocodile Research Centre of the Wildlife Institute of India, 19-4-319 Lake Dale, Bahadurpura Post, Hyderabad-500 264 (Andhra Pradesh) or the National Ganges Chambal Sanctuary, Post Box 11, Morena-476 001 (Madhya Pradesh), India.

Adam Markham said "The ITTO is set up to co-ordinate policies and projects of member countries in order to achieve sustainable forest management. If one country alone improves its forest management it could find itself at a competitive disadvantage since its timber will become more expensive.

Malaysia and Indonesia have already instituted bans on log exports and if Brazil continues to export logs its action would appear to undercut this by supplying logs to the lucrative Japanese market which were previously supplied from Malaysia and Indonesia."

Demoiselle Cranes appear at Pune

DR. SATTYASHEEL NAIK
Indian Crane Working Group

In winter, large numbers of Demoiselle Cranes migrate to northern India. For the last few years, the cranes have traveled farther south than before to Veer Dam south of Pune in west central India.

The Demoiselles were first seen and photographed here in February 1984 when they numbered about 2,000. They next arrived on 30 January 1985 in similar numbers. The following winter they came much earlier, on 15 December 1985, and they numbered about 5,000. For 1986-87, they arrived on 23 November and numbered more than 10,000. Their early arrival and sudden increase appears due to scarcity of rains and an early drying of the lakes in the north. Severe winter in the north in 1986-87 might be a second cause.

The banks of the Veer Dam slope gradually down to the water. During the monsoons this land is submerged. Then in winter when the water recedes the farmers cultivate maize, gram, jowar, sunflower, and safoia in the lake bottom. The arrival of the Demoiselle Cranes coincides with the sprouting of these crops. The tender shoots provide the bulk of crane food in early winter, and as the plants grow their seeds are consumed.

The cranes rest close to the lake banks. Flocks usually range from 50-250; at times several flocks congregate at a particular site and may total more than 1,000.

The cranes cause a lot of destruction to crops, and hence the farmers are annoyed. If a large flock settles down on an acre of land, within no time the field is stripped bare, as if a huge lawn mower had cut the entire area. The local farmers informed us that during the day they stood guard and scared off the cranes by making noises, throwing stones, and beating drums. They also use firecrackers. But the cranes also feed at night so it is impossible to keep them away at all times.

Because successful sowing of seed depends largely upon the rains, there is no chance for the farmers to replant. Most of the farmers have only small fields and are very poor. The total loss of their crops at this critical time is devastating and spells hunger and poverty. It is no wonder, then, that they look upon the cranes as their staunch enemies and are totally unsympathetic toward the protection of the species. For them our talk is nothing but "high flown jargon."

The farmer has my full sympathy.

But I also feel equally concerned about the cranes. They should be given proper protection. This is being done by the

between the farmers and the cranes; we "friends of the birds" could also remain friends of farmers.



Demoiselle Cranes winter close to people in India. Drought, and changing distribution of the cranes, have led to conflict with farmers working the fields where the cranes feed.

Forest Department no doubt. I have suggested a further step. There is plenty of land that belongs to the government, lying barren in this area. This land could be cultivated with maize, gram, jowar and other crops for the cranes. This could be an ideal compromise

The Demoiselles are an inspiring sight for bird lovers. The best time to see them is at early dawn or sunset from December to March. After the crops are harvested, the cranes start migrating north, toward central Asia.

BIOPHILATELY – VI

Awareness, Via-Mail

MAJ. GEN. E. D'SOUZA, PVSM (Retd.)

Former Secretary General, WWF – India.

Biophilately is the new name of the game if you are collecting wildlife postage stamps, first day covers and cancellations. With the interest in conservation and nature growing daily, this hobby has assumed greater significance meriting a special mention by the American Topical Association (ATA) and Stanley Gibbons (UK).

Readers of this column will be pleased to learn that the British Council Division, Bombay in collaboration with WWF-India, BNHS and private collectors, have arranged a special exhibition at the BCD Gallery, Mittal Towers C, Nariman Point, Bombay, of wildlife stamps, photographs of Indian wildlife and publications on wildlife and nature, from 19th to 30th December, 1988. This aims to create an awareness and love for nature. The Exhibition would be inaugurated by Mr. John Brasnet, CMG, British Deputy High Commissioner in Bombay, on December 19, 1988 to which all, especially nature lovers, were invited. The exhibits:

Biophilately

Evolution of Birds: Mr. Eric Ramanujam, Madras
Insects and Marine Life: Mr. Naresh Chaturvedi, BNHS
Endangered Asian mammals: Maj. Gen. (Rtd.) E. D'Souza
(Ref: IUCN Red Data) Book)

Photographs of Indian wildlife

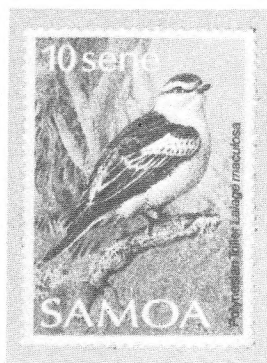
24 blacks and white photographs (20" x 7") by one of India's most eminent wildlife photographers and a Fellow of Royal Photographic Society (FRPS) – Mr. M. Y. Ghorpade MP of Sandur.

Publications

The British Council Division Library
World Wide Fund for Nature-India
Bombay Natural History Society
Mr. M. Y. Ghorpade (Sunlight and Shadows)
Major General (RETD.) E. D'Souza

It is heartening to note that these snippets on biophilately in the WWF-India Quarterly are attracting attention. The responses I keep receiving indicates a growing awareness in Nature.

The new issues received from Samoa (avifauna), the Falkland Islands (geese) and Papua New Guinea (butterflies) make rather interesting fare.



WESTERN SAMOA

New birds definitives

Designer – Mr David Johnston (Virgil Pomfret Agency –
Printers – CPE Australia Ltd.
Process – Lithography
Released – 17th August 1988
Designs and Value –
10S – Polynesian Triller

(*Lalage maculosa*)

Twelve races found in Western Samoa. Robust medium sized black and white bird.

15S – Samoan Wood Rail

Almost certainly extinct for unknown reasons. Last specimen collected in 1874. Eleven skins existing today in various museums.

20S – Flat-billed Kingfisher

(*Halcyon recurvirostris*)

Has been able to diverge into full species.

25S – Samoan Fan Tail

(*Rhipidura nebulosa*)

An entirely sooty-grey fantail. Similar to the Spotted Fantail.

35S – Scarlet Robin

(*Petroica multicolor*)

Feeds on flying insects both in the air, on the ground or from tree trunks/branches. Nests located in trees, beautifully camouflaged.

40S – Mao

(*Gymnomyza samoensis*)

Large, dark looking honeyeater uniformly olive black with brown suffusion. Slender down curved bill. Black feet, a noisy bird with a loud wailing call. Endemic on Savai'i, Upolu and Tutuila in native forests. It is a rare bird more commonly heard than seen.

50S – Cardinal Honeyeater

(*Myzomela cardinalis*)

A striking bird with vivid scarlet upperparts, chin and throat. Female a drab olive-grey with a scarlet rump.

65S – Samoan Whistler

(*Pachycephala flavirostris*)

Male and female similar plumage viz. dull black upperparts and yellow underparts. Wide distribution on Upolu and Savai'i yet not a common bird.

75S – Many coloured Fruit Dove

(*Ptilinopus superbus*)

These Ptilinopus doves are small compact birds. Only a close inspection reveals its multicolours. Has a distinctive colour described as an ascending diminuendo.

85S – White-throated Pigeon (*Columba vitiensis*)

A large bird with a sooty-grey colour. It has a slowly delivered call; normally quiet except during courtships and breeding.

FALKLAND ISLANDS –

Geese/Birds

Release – 25th July 1988
Designer – Ian Strange
Printer – Walsall Security Printers Ltd.
Process – Lithography
Values and designs –



10p – Kelp goose

(*Chloephaga hybrida malvinarum*)

Confined to the Falklands. A very striking species with adult males pure white. Widely distributed along the island's coastlines where, at low tides, can graze on kelp or sea-weed.

24p – Upland Goose

(*Chloephaga picta leucoptera*)

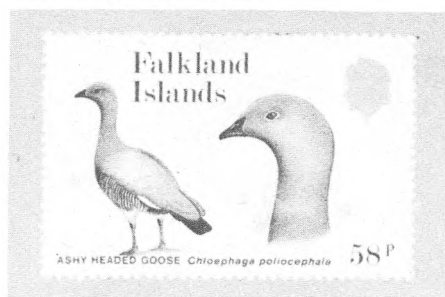
Males are white ventrally. It is a larger species of geese widely distributed on these islands. Feeds on grass swards, coastal greens and

berries. Sheds flight feathers (moulting) in December, close to fresh water ponds or coastal beaches where, if disturbed, can take to water.

29p—Ruddy headed Goose
(*Chloephaga rubidiceps*)

Smallest of those geese found in the islands. Male and female plumage alike. Prefer to graze on coastal grasslands. Shier than Upland Geese.

58p—Ashy-headed Goose
(*Chloephaga poliocephala*)



Similar to but larger than the Ruddy-headed Goose. Different coloured head. Uncommon in the falklands. Prefers grasslands and close proximity to wooded areas. Associates with Upland and Ruddy-headed Geese. Beautiful ashy—blue grey head and upright stance make it quite distinct. Nests in hollow trees.

Papua New Guinea

Butterflies (Incorporates the WWF logo)

Designer — Derek Miller from the originals by Michael Parsous.
Printer — Walsall Security Printers
Process — Lithography
Release — 19th September 1988
Designs and Values — Queen Alexandra's Birdwing Butterfly



5t—Male and Female in courtship
17t—Female overpositioning male larva
25t—Male emerging from Pupa
35t—Male feeding

This species is the world's largest butterfly with a wingspan of upto 25cms. The caterpillars feed only on Aristolochia vines. Found in tropical forests much desired by insect collectors. *O. alescandriae* rarest birdwing entirely restricted to the Popoudetta region of the northern province of PNG, Cluder due to habitat destruction. First specimen collected by Alfred Stanley Meek in 1906; it was brought down by a shot-gun and is housed in the British Museum of Natural History, London.



In the Mail

Dear Sir,

In the young Democratic Republic of Nicaragua, environmental concerns are gaining high priority.

Like many Central American countries, the legacy of pesticide peril left over by the Somoza regime in Nicaragua is creating serious health problems. For instance a U.S. volunteer epidemiologist based at the University of Leon has detected high levels of acetylcholinesterase in children due to the spraying of the lethal biocide Furadan.

As the Nicaraguans and their leaders are locked in a unique war for peace, the environmentalists are fighting a promising battle against pesticides. For instance the neem tree is increasingly being recognized as a source of natural insecticides, apart from being an insect repellent. The progress of research work on the topic is impressive. One of the findings is that the crude extract of neem contains about 30 micrograms of azadirachtin, a natural insecticide, which is indeed a promising result.

The research group at the University of Leon is interested in an information and experience exchange with groups/individuals having knowledge about the insecticidal property of neem, and alternative pest control in general. Kare Wahlberg, a Swede-chemist-volunteer from the International Youth Federation for Environmental Studies will gratefully receive your correspondence. He could also put you in touch with the Nicaraguan environmental groups. He may be contacted at UBV, Apto. 2277, Managua, Nicaragua.

Peace with Nature.

S. FAIZI

P. O. Box 61681
Riyadh 11575
Kingdom of Saudi Arabia

Dear Sir,

Ours is a non-profit social club which has been recognised by "VOA". Our members are all college students who take active interest in various social activities.

Meantime, we are increasing our contracts with some International and National Organisations like 'Beauty Without Cruelty' and the 'Bombay Social Service Society'. We are interested in social service activities. Moreover, we are interested in your organisation's activities like preservation and conservation of the Environment and so on. So please make it possible to provide us more information and details of your organisation.

If you are in contact with any social club

wanting non-financial and social help you can guide them to us. Also if you know any Institution/society/club/organisation carrying out social activities of International/National interest please inform us of them alongwith their address for further contact.

We look forward to be of your active assistance.

Thanking you

MR. DAYANAND AITHAPPA
Information Seekers Club
(VOA Listeners' Club 00633)
Kranti Co-op. Hsg. Soc. Ltd.
Bldg. No. 150/4573
Kannamwar Nagar-1
Vikhroli (E)
Bombay-400 083

Dear Sir,

This refers to the column "Awareness, Via-Mail" (Philately-IV) by Maj. Gen. E. D'Souza (Retd.) in Newsletter No. 65.

Maj. Gen. D'Souza has written that the country (India) has not produced a single wildlife stamp on interesting species of primates such as the Golden Langur and the Lion-tailed Macaque.

This is not true. Enclosed herewith are xeroxed copies of the stamps featuring the Golden Langur and the Lion-tailed Macaque, so as to amend the text in the next newsletter.

RAJIV SAXENA
Hanuman Nagar
Phalka Bazar
Gwalior-474 009 (M.P.)

Dear Sir,

There have been reports in a section of the Press that since the tiger population is increasing, we in India, are restricting the tiger population by performing operations. Does that mean that we have reached a stage where we have more tigers than warranted. Would this justify the demand for the Tiger Reserve at "KALAKADU MUNDANTHURAI" at Tamil Nadu as desired in the newsletter of September 1988.

I would also be interested in having the address of institutions keeping a track of the tiger census in India.

Thanking you.

G. JAYWANT NAIDU
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3-6-672
Himayatnagar
Hyderabad-500 029.

